

**Grant Guidelines**  
**Great Lakes Athletic Trainers' Association**  
**Research Assistance Committee**

**These instructions are for the Professional and Student Grants.**

**Pilot grant instructions begin on page 4.**

**Purpose**

The purpose of the GLATA research grant program is to foster original scientific investigations from its members.

**Scope of Research**

The GLATA Research Assistance Committee (RAC) welcomes research grant proposals that investigate topics relevant to athletic training.

**Eligibility Requirements**

**Student Grants.** The application must represent the applicant's student-driven research project. S/he must:

1. Be a master's or doctoral student at the institution where the research is to be performed;
2. Have student status for the duration of the project term outlined in the grant;
3. Assume personal responsibility for conducting the research proposed in coordination with the PI;
4. Be a member of the GLATA at the time of submitting an application for funding.

**Professional Member Grants.** PI or Co-PI must be member of GLATA as an athletic trainer (clinician or educator). Interdisciplinary collaboration between athletic trainers and other health-care researchers is encouraged.

**Level of Funding**

1. Awards are available at a maximum of \$1,000.00 for Master's student, \$2,500 for Doctoral student, and \$6,000.00 for professional applicants. Only direct project costs will be funded. Indirect costs will not be supported by the grant. Funding extensions can be approved by the committee. A final summary report is due within 30 days of the conclusion of the grant.
2. Conference presentation expenses for the GLATA Annual Meeting to include travel, one-night hotel stay, should be included in the grant budget and budget justification (\$200 maximum).
3. *At its discretion, the Research Assistance Committee may fund grants at a lower level.*

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**Submittal Instructions**

- **Deadlines:** Grant proposals must be submitted to the Research Assistance Committee via <http://www.glata.org/research-assistance-committee/> by the 11:59pm Eastern Standard Time on the deadline (**Professional Member - September 15; Students - October 15**). All applicants should receive e-mail notification that their applications have been received.
- **Human Subjects:** Human Subjects approval of the proposed research project by an Institutional Review Board is required for funding dispersal. No funds will be distributed to grantee without proof of the IRB approval.
- **Format:** Applications must be submitted electronically as a **single .pdf** document by the listed deadline (September/October 15). The application should be typed with a font no smaller than 11 point and 1-inch margins on all sides. Single spacing is recommended. Failure to comply with the page restrictions listed below will result in rejection of the application. Please number all pages beginning with the cover page.

**Research Proposal**

A complete proposal will include the following components:

1. **Cover Sheet.** This form is found in the grant application packet. This form must be page 1 of the grant application.
2. **Conflict of Interest Disclosure.** This form must be signed and be page 2 of the grant application. This form is found in the grant application packet.
3. **Project Summary.** The summary is viewed as a stand-alone document. State the specific aims and hypotheses. Describe concisely the research design, methodology, statistical analysis, and expected outcomes (including any clinical/practical applications). Limit to 200 words and 1 page in length.
4. **Budget and Budget Justification.** Provide a detailed budget, itemized by expense categories. The term of the proposal is one year (exceptions may be considered). Funds may be used to support supplies and equipment, student work, technicians, research assistants, study coordinators, or statistical support. A stipend will not be awarded to the individual applicant. Institutional overhead costs are not permitted. A maximum of \$750 is allowable for travel expenses directly related to conducting the project. Limit to 1 page.
5. **Research Proposal.** The total research proposal should not exceed 5 pages. Please include the following sections:
  - a. Specific Aims (1-page limit)
  - b. Research Plan (4-page limit)
    - i. Significance
    - ii. Approach
    - iii. Timeline

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6. **Appendices (if applicable)**
  - a. **Forms to support the study.** (Questionnaires, human subject's approval form, etc.).
  - b. **Biographical Sketches.** We always accept the most recent NIH biosketch. Students should use the NIH template or the GLATA template version and limit to 2 pages.
7. **References.** Please number reference according to order of appearance.

**Awarding of Funds**

1. Funds shall be awarded to the institution/agency within 45 days of the application deadline.
2. Funds must be expended, and the project completed within one calendar year of receiving funding. Funds allocated will be reduced in instances when the budget was considered to be too high. submitted to the attention of the committee chair.
3. Funds will not be released until IRB approval has been received by the RAC chair.

**Responsibilities of Awardees**

1. Submit an abstract of the completed project to the Free Communication program at the GLATA Annual Meeting and Symposium.
2. Publications and presentations resulting from projects supported by GLATA funds must acknowledge GLATA's support.
3. Requests for extensions of the period of investigation for active projects, without additional funds may be considered by the RAC. All such requests must be sent to the chair of the RAC. Any such request should have the signature of the applicant organization's authorized approved official or some other tangible indication that the appropriate office has been alerted to the request. Requests for extension of time should be limited to six months or less, although requests for longer extensions may be considered in exceptional circumstances.
4. Requests to redirect funds within the approved budget must be directed to the chair of the RAC. They must be accompanied by a statement that explains the circumstances leading to the request. Normally, only requests confined to the scope of the original request will be approved.

**Pilot Grant Program Guidelines**  
**Great Lakes Athletic Trainers' Association**  
**Research Assistance Committee**

**Purpose**

The purpose of the GLATA pilot grant program is to provide opportunities to investigators who have a research idea and need a small amount of money to buy equipment or enroll a small number of subjects to show proof of concept.

**Scope of Research**

The GLATA Research Assistance Committee (RAC) welcomes research grant proposals that investigate topics relevant to athletic training.

**Eligibility Requirements**

PI must be member of GLATA. Interdisciplinary collaboration between athletic trainers and other health-care researchers is encouraged.

**Criteria for Evaluation:**

Grants will be reviewed by the GLATA Research Assistance Committee and will be judged based on the following:

- Alignment with the mission of GLATA and the RAC
- Strength of the rationale for the research
- Project potential and plans for future funding

**Level of Funding**

Awards are available at a maximum of \$500.

**Submittal Instructions**

- **Deadlines:** Grant proposals must be submitted to the Research Assistance Committee via <http://www.glata.org/research-assistance-committee/> by the 11:59pm Eastern Standard Time on the deadline. **(September 15 & October 15)**. All applicants should receive e-mail notification that their applications have been received.
- **Human Subjects:** Human Subjects approval of the proposed research project by an Institutional Review Board is required for funding dispersal. No funds will be distributed to grantee without proof of the IRB approval.
- **Format:** Applications must be submitted electronically as a **single .pdf** document by the listed deadline. The application should be a maximum of 2 pages, typed with a font no smaller than 11 point, and 1-inch margins on all sides. Single spacing is recommended. Failure to comply with the page restrictions listed below will result in rejection of the application.

**Pilot Grant Program Guidelines**  
**Great Lakes Athletic Trainers' Association**  
**Research Assistance Committee**

**Research Proposal**

A complete proposal will include the following components:

1. **Cover Sheet.** This form is found in the grant application packet. This form must be page 1 of the grant application.
2. **Conflict of Interest Disclosure.** This form must be signed and be page 2 of the grant application. This form is found in the grant application packet.
3. **Research Proposal (2-pages max) (see example)**
  - a. Background and Rationale for the Project. The proposal must include a brief description of the project (see example below).
  - b. Budget and Budget Justification. Provide a budget, itemized by expense categories. Only direct project costs will be funded. Indirect costs will not be supported by the grant. Funding extensions can be approved by the committee. The budget should focus on subject remuneration and small equipment. Personnel costs and travel are not allowed unless approved by the research committee prior to submission. The term of the proposal is one year (exceptions may be considered). Institutional overhead costs are not permitted. A maximum of \$500 is allowable.
  - c. Plans for ongoing support. What grants might you apply for in the future?
  - d. References. References should be included in the two-page limit.

## Physical Activity After Knee Injury: The PAAKI Study

### Proposal

ACL sprains occurs approximately 250,000 times in the United States annually with an associated cost of over \$3 billion.<sup>9</sup> The majority of ACL injuries result in surgical reconstruction, a long rehabilitation period, and a substantial financial burden. Additionally, these injuries have long-term health implications as they are associated with increased risk of developing osteoarthritis and obesity. Osteoarthritis is a common condition that is disabling and limits normal daily functioning in adults.<sup>2</sup> Onset of osteoarthritis at a young age may result in long-term disability.<sup>8</sup> Lohmander et al.<sup>8</sup> observed that over 50% of female soccer players with an ACL reconstruction developed radiographic osteoarthritis in the involved knee only 12 years after surgery. We know that ACL injuries and reconstruction result in disability and neuromuscular changes but we do not know if these changes lead to decreased physical activity levels.

Physical activity is classified as one of the three highest risk behaviors in the development of cardiovascular disease, cancer, diabetes, and obesity.<sup>5</sup> Additionally, physical activity has been shown to be protective in the development against osteoarthritis.<sup>4</sup> Thus, a knee injury may eventually be related to a substantial health care burden. However, there is a substantial gap in the knowledge about how ACL injury and reconstruction influence physical activity in young adulthood. This is especially pertinent in young adults who should be participating in moderate to vigorous forms/bouts of physical activity. However, knee pain and decreased subjective function may preclude their ability to participate in these activities.

One of the most common issues after ACL reconstruction is persistent deficits in quadriceps strength.<sup>1</sup> These deficits can persist for years following ACL reconstruction and are an important determinant of performance tasks and self-reported outcomes.<sup>7</sup> In a recent review, the average quadriceps strength deficits via isokinetics on the reconstructed limb averaged 23% (range 3-40%) 6-12 months after ACL reconstruction.<sup>9</sup> It is possible that poor quadriceps strength after ACL reconstruction and rehabilitation may be related to lower levels of physical activity. This study aims to address these gaps in knowledge. This research is significant because it will be the first study to quantify physical activity levels using accelerometers in patients with ACL reconstruction. Additionally, it will be the first to quantify the relationships between physical activity and quadriceps strength and subjective knee function.

**Aim 1.** Determine if patients with ACL reconstruction have different levels of physical activity than matched controls with no history of knee injury **and** determine if quadriceps strength and knee function are associated with physical activity level. **Hypothesis:** Patients with ACL reconstruction will have lower levels of physical activity (min/week spent in moderate to vigorous physical activity, steps per week) compared to healthy matched controls. There will be positive correlations between physical activity measures and knee function and quadriceps strength. **Methods:** This is a cross-sectional study investigating physical activity levels in patients with ACL reconstruction. In this study, physical activity will be tracked using the ActiGraph wGT3X-BT physical activity monitor. We will also assess knee function and quadriceps strength to determine relationships between these measures and physical activity. Forty (20 ACL reconstructed and 20 controls) recreationally active college students will participate in this research study. In order to qualify in the ACL reconstruction group, participants must have undergone reconstruction within the last 5 years, be 18-25 years of age. In order to qualify for the control group, participants must be 18-25 years of age, have no history of ACL injury or lower extremity surgery. Groups will be matched according to sex. **Visits:** We will measure height, weight, quadriceps strength, and knee health and quality of life questionnaires. They will also be given instructions on how to complete a 7-day physical activity assessment. Participants will return one week later to review the accelerometer data to ensure satisfactory data collection. **ActiGraph Accelerometer.** The ActiGraph wGT3X-BT will be used to measure physical activity. Participants will be required to wear the accelerometer for at least 10 hours per day. **Quadriceps Strength Testing:** Strength will be tested using a handheld dynamometer from a seated position using standardized procedures. The average of 3 trials will be recorded and used for analysis. Subjects will receive \$20 for participation. **Anticipated Outcomes:** Consider adding a brief sentence on anticipated outcomes.

**Aim 2:** To determine changes in physical activity following ACL reconstruction. Specifically, we plan to use a repeated measures study design to assess changes in physical activity in patients at four, six, and nine months following ACL reconstruction. **Working Hypothesis:** Physical activity (min/week spent in moderate to vigorous physical activity, steps

per week) will increase from month four to month nine and quadriceps strength and knee function at month four will be predictive of physical activity at month nine. **Methods:** Participants will be enrolled according to the previous criteria except we will test them beginning in the 4<sup>th</sup> month after surgery. This time point coincides with a decrease in formalized rehabilitation and patients are often attempting to increase their cardiovascular health. The six and nine month time points coincide with periods of return to activity (six months) and not participating in formalized rehabilitation (month nine). The ActiGraph will be worn for one week during the each month as described above and surveys and quadriceps strength will be completed at each time point. This aim is independent from Aim 1. Even if Aim 1 is unsuccessful it is still important to determine 1) how physical activity changes throughout rehabilitation, 2) when physical activity recovers after surgery, and 3) determine factors that predict physical activity after rehabilitation has ended. Subjects will receive \$20 for each testing session (\$60 total). **Anticipated Outcomes:** Consider adding a brief sentence on anticipated outcomes.

**Statistics and Sample Size:** Our primary variable of interest for Aim 1 will be moderate to vigorous physical activity (min/wk) between groups. The mean previously reported in a healthy control group was 212.5±38.5 min/wk. With 80% power ( $\alpha = 0.05$ ), we can detect a clinically important 20% difference between groups in the primary variable of interest using independent t-tests with 14 subjects per group. We will increase the sample size to 20 subjects per group to ensure adequate statistical power. Differences in dependent variables will be evaluated using independent t-tests (or non-parametric tests). Relationships between variables will be investigated using bivariate correlations (or non-parametric tests) ( $\alpha \leq 0.05$ ). For aim 2, we will use repeated measures ANOVAs to determine changes in physical activity (min/wk). With 80% power ( $\alpha = 0.05$ ), we can detect a clinically important 20% increase in vigorous physical activity from changes between 4 and 9 months with 9 subjects per group. We will increase to 15 subjects per group in order to ensure adequate power. Aim 2 is more exploratory in nature and we will seek additional funding to expand this aim.

**Budget:** Aim 1: 20 subjects @ \$20 each = \$800; Supplies: Reusable supplies = \$100

**Future Plans for Support:** We plan to submit a R01 or R21 to the NIH to support this research agenda.

### References

1. Bell DR, et al. Squatting mechanics in people with and without anterior cruciate ligament reconstruction: the influence of graft type. *Am J Sports Med* 42: 2979-2987, 2014.
2. Davis MA, et al. Knee osteoarthritis and physical functioning: evidence from the NHANES I Epidemiologic Followup Study. *J Rheumatol* 18: 591-598, 1991.
3. Emery CA. Risk factors for injury in child and adolescent sport: a systematic review of the literature. *Clin J Sport Med* 13: 256-268, 2003.
4. Hubbard-Turner T, et al. Lifelong physical activity and knee osteoarthritis development in mice. *International journal of rheumatic diseases* 18: 33-39, 2015.
5. Hubbard-Turner T, et al. Physical Activity Levels in College Students With Chronic Ankle Instability. *J Athl Train* 50: 742-747, 2015.
6. Lepley LK. Deficits in Quadriceps Strength and Patient-Oriented Outcomes at Return to Activity After ACL Reconstruction: A Review of the Current Literature. *Sports health* 7: 231-238, 2015.
7. Logerstedt D, et al. Self-reported knee function can identify athletes who fail return-to-activity criteria up to 1 year after anterior cruciate ligament reconstruction: a delaware-oslo ACL cohort study. *J Orthop Sports Phys Ther* 44: 914-923, 2014.
8. Lohmander LS, et al. High prevalence of knee osteoarthritis, pain, and functional limitations in female soccer players twelve years after anterior cruciate ligament injury. *Arthritis Rheum* 50: 3145-3152, 2004.
9. Myer GD, et al. Rationale and Clinical Techniques for Anterior Cruciate Ligament Injury Prevention Among Female Athletes. *J Athl Train* 39: 352-364, 2004.

**Commented [DRB1]:** This is probably too much detail for the pilot grant program. In many cases, a full analysis plan might not be needed for a proof of concept project. You may consider calculating means and standard deviations in order to estimate the effect sizes of an intervention, etc.

Also, you might want to show feasibility of an idea.

Some sample feasibility aims might include:

1. Assess feasibility of an ACL rehabilitation program overtime in order to estimate adherence and subject satisfaction.
  - a. Outcomes for this aim might include determining how many subjects can you recruit over a specified time period, whether enrolling subjects is successful, and how many subject might adhere to the program.
2. Estimate changes in outcomes

**Commented [DRB2]:** \$500 max.

**Commented [DRB3]:** This section can be brief but it is important. Tell us how you are going to leverage these data if successful.